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A COMMANDER'S GUIDE TO

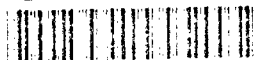
CHILDHOOD LEAD POISONING PREVENTION/
LEAD-BASED PAINT MANAGEMENT PROGRAM
ON DOD INSTALLATIONS

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*Developed through the DOD Interagency Committee on
Lead-Based Paint in Military Housing*

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USAEHA TECHNICAL GUIDE NO. 198

**A COMMANDER'S GUIDE TO CHILDHOOD LEAD POISONING
PREVENTION/LEAD-BASED PAINT MANAGEMENT PROGRAM
ON DOD INSTALLATIONS**

Purpose

Provide current information and guidance for commanders to establish a Childhood Lead Poisoning Prevention (CLPP)/Lead-Based Paint Management (LBPM) Program on their installations.

Introduction

DOD installation commanders must take a proactive role in developing a CLPP/LBPM Program by:

- Appointing a multidisciplinary core of people on the installation to develop an overall program of lead risk reduction
- Explaining how to develop the installation program
- Incorporating guidance as it becomes available from DOD

Background

Lead poisoning one of the most common
and preventable pediatric health
problems today.

Environmental exposure to even low dosage levels of lead increases a child's risk of developing:

- Permanent learning disabilities
- Reduced concentration and attentiveness
- Behavior problems

These problems may persist and adversely affect the child's chances for success in school and life.

Children get lead poisoning primarily
by ingesting lead.

The most significant sources of environmental lead are:

- Deteriorated lead-based paint (LBP) in housing
- House dust contaminated by lead
- Soil contaminated by lead

Other sources of lead include:

- Lead used in consumer products
- Lead in drinking water
- Lead in ambient air

Sometimes children are poisoned by chewing or sucking on lead painted surfaces or by eating paint chips. But the most common cause of poisoning is ingestion of lead dust and soil through normal hand-to-mouth activities, such as thumb-sucking or mouthing toys. Inhalation of airborne lead is considered a minor exposure pathway for individual children.

If a child is living in a residential dwelling with high levels of lead in dust, it is possible that the child may become lead poisoned.

Lead dust is invisible. It settles from the air and sticks to surfaces where it can be picked up on children's hands and later ingested. The most significant sources of lead dust are:

- Deteriorated LBP that is chalking, chipping, peeling, or flaking
- LBP on surfaces subject to chewing, friction, or impact, such as window sashes, doors, or painted floors
- Exposed soil with high levels of lead contamination

Blood lead level screening programs on some DOD installations have been initiated.

A handful of children with elevated blood lead levels have been discovered. Following confirmation of the blood lead levels, investigations have not been able to establish the exact pathway of lead exposure for these children. Also unknown is where the exposure may have occurred. What is known, however, is that:

LBP has been used on many residential dwellings and buildings on DOD installations.

Directives

House Report 102-95 accompanying the Defense Appropriations Act of 1992, directed DOD to:

- Take a more active role to ensure military dependent children are not affected by LBP
- Establish a screening program for all dependent children (six years old or younger) for lead uptake

Public Law 102-550--"The Residential Lead-based Paint Hazard Reduction Act of 1992"--states that DOD must comply with all federal, state, interstate, and local requirements with respect to LBP, LBP activities, and LBP hazards, including:

- Certification
- Licensing
- Recordkeeping
- Payment of reasonable service charges
- Performing risk assessment, etc., according to HUD guidance scheduled for publication in late 1993

DOD Memorandum, 24 November 1992, subject: Risk Assessment, Associated Health Risk in Children, and Control of Hazards in DOD Housing and Related Structures, establishes a policy of shared responsibility for:

- Assessment of the health risk from LBP
- Control of LBP hazards in DOD housing and related structures:
 - Child Development Centers/Family Child Care homes
 - Schools
 - Other facilities frequented by children six years old and younger
 - Playground areas and equipment

Discussion

Community-level prevention of lead poisoning in children is the goal of a CLPP/LBPM Program. However, as DOD implements blood lead screening programs, case management of lead poisoned children may occur first. Emphasis will then shift to community-level intervention and efforts to prevent cases of lead poisoning by prudent and affordable identification and hazard reduction of environmental sources of lead, including LBP in dwellings.

The shift from case management to community-level intervention requires a fundamental shift in perspective from the individual child to the population of children at risk and the environment in which they live.

The purpose of community-level intervention is to identify and respond to sources, not cases, of lead poisoning.

Program Development

The most effective way for an installation commander to address the multitude of issues that surround the CLPP/LBPM Program is to:

Establish a Lead Hazard Management Team (LHMT)

whose chair has direct access to the commander. Team members should include representatives from:

- Engineering and Housing/Public Works
- Medical
- Safety
- Public Affairs
- Legal
- Section 6 or DOD Dependent Schools and Child Development Services

Within the specific disciplines, multiple representation may be required. For example, medical services may be represented by the preventive medicine/public health physician, family practitioner, pediatrician, industrial hygienist, environmental science officer, laboratory officer, CHAMPUS coordinator, and community health nurse. The purpose of the LHMT is to:

- Clarify and commit each area of responsibility in the CLPP/LBPM Program
- Develop a strategy to administer the program
- Estimate the program cost (e.g., implementing, training, allocating manpower, administering, contracting services, etc.)

The coordinated team approach is a prerequisite for program success because all of the issues regarding lead poisoning prevention and LBP within DOD are not clearly defined.

Community-level Intervention

Successful community-level intervention involves at least four elements:

- *Outreach, education and training.* Reduce lead exposure through risk communication by (1) informing the public about the hazards of LBP exposure, and (2) alerting healthcare providers and other professionals of the hazards associated with exposure to LBP and preparing them to deal with the public's concern and requests.

- **Hazard assessment and integrated prevention planning.**
Assess the extent of the lead problem and develop a coordinated effort to develop a lead poisoning prevention plan.
- **Screening, surveillance, and medical case management.**
Identify high-risk populations and areas by (1) screening children to determine their blood lead level, (2) conducting environmental surveys to determine the source of lead exposure, and (3) collecting demographic data. Conduct medical case management of children with elevated blood lead levels.
- **Hazard reduction.** Reduce the risk of exposure to LBP hazards and lead in dust and soil. Emphasize in-place management practices (hereinafter referred to as interim controls) to reduce excessive exposures to lead prior to abatement.

Outreach, Education, and Training

The outreach education effort is most meaningful when it receives the support of the installation commander.

Provide outreach and education during all phases of activity from pre-screening to post-hazard reduction. Among the most important targets for outreach and educational programs are:

- Healthcare providers
- Parents
- Child Development Center personnel
- Family Child Care providers
- Early childhood educators
- Housing managers
- Facilities engineering/public works personnel
- Safety officers

Provide multifaceted outreach education programs through the use of:

- Pamphlets (e.g., EPA's "Lead Poisoning and Your Children")
- Other written materials
- Local news media
- Public meetings
- School programs
- Staff in-service programs

Educate and provide in-service training for the in-house and contractor engineering or facilities engineering/public works personnel.

Train and certify personnel responsible for an installation's CLPP/LBPM Program with an accredited EPA lead training course. EPA is developing role-specific courses to serve as models for training abatement workers, inspectors, and supervisors. DOD is working with EPA to develop DOD-specific courses.

Hazard Assessment and Integrated Prevention Planning

To determine the extent of the lead problem on an installation, preventive medicine/public health personnel and facilities engineering/public works personnel on the installation should:

- *Use all information at their disposal:*
 - Blood screening results
 - Environmental survey data
 - Demographic information (e.g., age of housing, number of preschool children, etc.)
- *Create the most accurate picture of the installation lead hazards, including:*
 - Sources of lead
 - Exposure patterns
 - High-risk populations
- *Identify specific sources of concern such as:*
 - Drinking water in houses with lead-soldered plumbing
 - Specific houses identified with LBP in deteriorated condition

Screening, Surveillance, and Medical Case Management

The lead hazard management team must analyze and interpret the information obtained from screening and surveillance efforts to make joint decisions when:

- Cases of elevated blood lead occur
- High-risk hazard reduction actions are taken

Identifying and quantifying the risk of childhood lead poisoning on the installation is dependent on combining data on:

- Blood lead levels
- Environmental sources of lead
- Community demographics

Generally, the population of greatest concern is children six years of age and younger.

The only true test of whether a childhood lead poisoning problem exists is through near-universal screening of children for blood lead levels.

DOD policy requires instituting blood lead screening programs where identified high-risk environmental conditions exist.

Environmental surveys identify possible sources and pathways of childhood lead exposure. Environmental surveys do not, however, negate the need for measurement of children's blood lead levels. The sources of lead that can be assessed in environmental surveys include:

- Lead-based paint
- Lead in dust and soil
- Lead in drinking water

- Lead from industrial sources and wastes
- Lead from atypical sources such as folk medicines, ceramic-ware, bullet or sinker casting, pottery kilns, or stained glass framing

Environmental surveys should test for lead in dust, soil, and paint. When screening for LBP and lead in soil and dust in housing, inspectors should follow hazard assessment procedures as recommended in the Housing and Urban Development (HUD) Interim Guidelines until more definitive guidance emerges.

Protocols for environmental sampling are currently being reviewed for application DOD-wide. In order to ensure that the most appropriate protocol is adopted, installation personnel assigned the task of environmental sampling should coordinate their testing procedures with their appropriate headquarters.

Additionally, the lead hazard management team must determine if the environmental sampling can be handled in-house or whether the effort should be contracted out. To support the contracting of environmental sampling, standardized contract specifications that can be modified for application at the installation are being developed. The installation will still be responsible for contract oversight even if the environmental sampling is contracted out. Guidance for in-house testing is also being developed.

Hazard Reduction

The goal of the DOD LBP Management Program is to systematically eliminate all lead hazards from installations.

This may involve many activities, such as corrosion control to reduce the amount of lead in drinking water and covering or removing lead-contaminated soil in parks and playgrounds. In many cases, the primary risk will be LBP and the primary form of hazard reduction will be interim controls--maintenance actions that are taken before any children have been poisoned.

Before any hazard reducing actions begin, the lead hazard management team must decide which lead hazards to target and then select appropriate procedures. Information gathered during hazard assessments should be used to ensure that the installation resources are directed where the highest risks exist:

- Child Development Centers/Family Child Care (FCC) homes
- Military family housing
- Grade schools and related facilities

Commanders have two options to manage LBP:

- Control the hazard through *interim controls*

Interim controls are a set of measures designated to temporarily reduce human exposure or likely exposure to lead-based paint and other lead hazards to include:

- Cleaning
- Repairs
- Maintenance
- Painting
- Temporary containment
- Ongoing monitoring of LBP hazards or other potential lead hazards
- Establishment and operation of management and resident education programs

Interim controls:

- Attempt to prevent exposure of lead in dust resulting from chalking, chipping, cracking, or peeling LBP
- Require periodic monitoring, cleaning, repairing, or encapsulation of surfaces containing or suspected to contain LBP

- Eliminate the hazard by *abatement*

Abatement is the permanent elimination of LBP hazards and includes:

- Removal of LBP and lead-contaminated dust
- Permanent containment or encapsulation of LBP
- Replacement of lead-painted surfaces or fixtures
- Removal or covering of lead contaminated soil
- All preparation, cleanup, disposal, and post-abatement clearance testing activities associated with such measures

DOD prefers to equate abatement with removal of LBP and lead-contaminated dust and soil. Concerns have been raised with associating the term abatement with "permanent" containment or encapsulation because of environmental restoration work required under base closure actions.

Currently, greater emphasis is placed on *interim* controls, rather than abatement.

When interim controls are no longer effective due to uncontrollable release of lead dust into the environment from deteriorated LBP, the safety of occupants and maintenance workers must be maintained through removal of the LBP. During LBP removal operations, the facility must be unoccupied. Applicable regulatory requirements established by OSHA, EPA, and other federal, state, and local agencies must be followed when:

- Removing LBP
- Protecting workers
- Cleaning up sites
- Disposing of lead-contaminated waste

References

U.S. Department of Housing and Urban Development, *Comprehensive and Workable Plan for the Abatement of Lead-based Paint in Privately Owned Housing: A Report to Congress* (December 1990)

U.S. Department of Housing and Urban Development, *Lead-Based Paint: Interim Guidelines for Hazards Identification and Abatement in Public and Indian Housing* (September 1990)

Centers for Disease Control, *Strategic Plan for the Elimination of Childhood lead Poisoning* (February 1991)

Centers for Disease Control, *Preventing Lead Poisoning in Young Children* (October 1991)

U.S. Environmental Protection Agency, *Strategy for Reducing Lead Exposures* (February 1990)

Public Law 102-550, "The Residential Lead-based Paint Hazard Reduction Act of 1992" (November 1992)
